Historic, archived document

Do not assume content reflects current
scientific knowledge, policies, or practices.

1.9 En833

E-58

UNITED STATES DEPARTMENT OF AGRICULTURE.
BUREAU OF ENTOMOLOGY.
WASHINGTON, D. C.

FOREST ENTOMOLOGY.

June 1, 1916.

Brief II. THE DYING HICKORY TREES ON LONG ISLAND, NEW YORK. CAUSED BY THE HICKORY BARKBEETLE.

LIBRARY RECEIVED JUN 8 1916 U. S. Department

Natural Enemies of the Adult Beetles and Their Broods.

The adult beetles from the time they emerge from the trees, in which the broods passed the winter, are subjected to the attack of many natural enemies and the influences of other destructive and opposing agencies which greatly reduce their numbers before they can concentrate their attacks on the trunks and branches of the living trees. Predatory beetles of various kinds catch and devour many adult beetles as they emerge or are crawling about on the bark. Small birds capture a great many of the beetles but they also get some of the natural enemies.

It is evident that many of the adult beetles after emerging scatter about, enter the bark of felled trees, dying branches, etc., and fail to join in the general attack on healthy trees.

One of the principal opposing factors which contributes to a reduction of the beetles is the vital resistance of the healthy trees when **attacked in numbers insufficient to overcome such resistance**. Thus the attacking beetles are drowned out by the sap or conditions are rendered unfavorable for the eggs to hatch or the young to feed. It is only when the beetles make a simultaneous attack on a healthy tree in sufficiently large numbers to at once overcome its resistance that they succeed in causing its death or in so weakening its vitality that their broods of young and other secondary insects effectually prevent its recovery.

Some of the parent beetles are killed in their entrance burrows and galleries before they deposit their eggs, by other insects and nematode worms, etc.

The eggs and very young larvae are often completely destroyed by the larvae of a small two-winged fly, which deposits its eggs in the entrance to the egg galleries.

The larvae of the beetle from the time they have attained some size until they are full grown and even the pupae and young beetles are devoured by the larvae of predaceous beetles (Clerids and Trogositids) which enter the egg-galleries or bore through the bark and follow the mines of the beetle larvae until they find their victims.

The larvae of the barkbeetle are also attacked by parasitic insects, which, by means of a sting-like ovipositor, insert their eggs through the bark into or by the sides of their victim upon which the parasitic larvae will later feed. Thus it will be seen that any artificial means that will supplement the natural agencies and reduce the number of the beetles to a point where they can not concentrate on the living trees in sufficient numbers to kill them, their powers of destruction will be ended.

A. D. HOPKINS,

Forest Entomologist.

May 26, 1916.